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DEPARTMENT
OF
AGRICULTURE

ECONOMIC
RESEARCH
SERVICE

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also in this issue:
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Cabbage:
Heads Up Favorite

ARM INDEX

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CURRENT SERIAL RECORDS
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The Not-So-Retiring Farmer



ECONOMIC TRENDS

ITEM	UNIT OR BASE PERIOD	'57-'59 AVERAGE	1966		1967		
			YEAR	AUGUST	JUNE	JULY	AUGUST
Prices:							
Prices received by farmers	1910-14=100	242	266	271	255	257	256
Crops	1910-14=100	223	235	239	227	225	224
Livestock and products	1910-14=100	258	292	300	279	285	283
Prices paid, interest, taxes and wage rates	1910-14=100	293	334	335	343	345	343
Family living items	1910-14=100	286	315	317	321	323	323
Production items	1910-14=100	262	285	287	290	291	289
Parity ratio		83	80	81	74	74	75
Wholesale prices, all commodities	1957-59=100	—	105.9	106.8	106.3	106.5	106.1
Industrial commodities	1957-59=100	—	104.7	105.2	106.0	106.0	106.3
Farm products	1957-59=100	—	105.6	108.1	102.4	102.8	99.4
Processed foods and feeds	1957-59=100	—	113.0	115.7	112.6	113.1	112.1
Consumer price index, all items	1957-59=100	—	113.1	113.8	116.0	116.5	—
Food	1957-59=100	—	114.2	115.8	115.1	116.0	—
Farm Food Market Basket: ¹							
Retail cost	Dollars	983	1,100	1,121	1,091	1,100	—
Farm value	Dollars	388	442	462	425	433	—
Farm-retail spread	Dollars	595	658	659	666	667	—
Farmers' share of retail cost	Per cent	39	40	41	39	39	—
Farm Income:							
Volume of farm marketings	1957-59=100	—	121	121	113	116	128
Cash receipts from farm marketings	Million dollars	32,247	43,219	3,678	3,232	3,285	3,700
Crops	Million dollars	13,766	18,384	1,508	1,245	1,420	1,500
Livestock and products	Million dollars	18,481	24,835	2,170	1,987	1,865	2,200
Realized gross income ²	Billion dollars	—	49.7	—	49.1	—	—
Farm production expenses ²	Billion dollars	—	33.3	—	34.5	—	—
Realized net income ²	Billion dollars	—	16.4	—	14.6	—	—
Agricultural Trade:							
Agricultural exports	Million dollars	4,105	6,855 ³	571	520	472	—
Agricultural imports	Million dollars	3,977	4,492 ³	353	365	347	—
Land Values:							
Average value per acre	1957-59=100	—	—	150 ⁴	160 ⁴	—	—
Total value of farm real estate	Billion dollars	—	—	171.1 ⁴	182.0 ⁴	—	—
Gross National Product: ²							
Consumption ²	Billion dollars	457.4	743.3	—	775.1	—	—
Investment ²	Billion dollars	294.2	465.9	—	489.7	—	—
Government expenditures ²	Billion dollars	68.0	118.0	—	105.1	—	—
Net exports ²	Billion dollars	92.4	154.3	—	175.0	—	—
Income and Spending: ⁵							
Personal income, annual rate	Billion dollars	365.3	584.0	589.1	622.6	626.7	631.2
Total retail sales, monthly rate	Million dollars	17,098	25,306	25,572	26,544	26,644	27,016
Retail sales of food group, monthly rate	Million dollars	4,160	5,927	5,920	6,050	6,036	—
Employment and Wages: ⁵							
Total civilian employment ⁶	Millions	63.9	72.9	73.1	74.1	74.5	74.7
Agricultural ⁶	Millions	5.7	4.0	3.9	3.7	3.9	4.0
Rate of unemployment ⁶	Per cent	5.8	3.8	3.8	4.0	3.9	3.8
Workweek in manufacturing	Hours	39.8	41.3	41.4	40.3	40.5	40.6
Hourly earnings in manufacturing, unadjusted	Dollars	2.12	2.71	2.70	2.82	2.82	2.82
Industrial Production: ⁵	1957-59=100	—	156	158	156	157	158
Manufacturers' Shipments and Inventories: ⁵							
Total shipments, monthly rate	Million dollars	28,745	44,037	44,206	44,888	45,112	—
Total inventories, book value end of month	Million dollars	51,549	77,897	74,110	80,390	80,667	—
Total new orders, monthly rate	Million dollars	28,365	45,182	44,842	46,087	45,402	—

¹ Average annual quantities of farm food products purchased by urban wage-earner and clerical-worker households (including those of single workers living alone) in 1960-61—estimated monthly. ² Annual rates seasonally adjusted second quarter. ³ Preliminary. ⁴ As of March 1. ⁵ Seasonally adjusted. ⁶ Series revised beginning January 1967, giving data for persons 16 years of age and older.

Sources: U.S. Dept. of Agriculture (Farm Income Situation, Marketing and Transportation Situation, Agricultural Prices, Foreign Agricultural Trade and Farm Real Estate Market Developments); U.S. Dept. of Commerce (Current Industrial Reports, Business News Reports, Advance Retail Sales Report and Survey of Current Business); and U.S. Dept. of Labor (The Labor Force and Wholesale Price Index).

THE AGRICULTURAL OUTLOOK

The year's harvest, now being weighed in, appears to be the biggest ever. Judging by September reports, the annual crop total may be at least 5 per cent above the 1966 level.

Livestock's contribution is likely to be 2 to 2½ per cent more than last year, though rate of production gain has slackened.

THE COTTON PICTURE

Highlights of the cotton situation as it looked in September:

- Sharp reduction in cotton carryover in sight;
- A 1967 cotton crop that is likely to be the smallest in 46 years;
- Lowest yields in five years;
- Total domestic mill consumption and export volume close to that of last year.

Stocks. By the beginning of the marketing year on August 1, 1968, stocks of all kinds of cotton may fall by about 5½ million bales to a level slightly under 7 million bales. The reduction last marketing year was 4½ million bales, from record stocks of nearly 16.9 million bales carried over on August 1, 1966.

The expected decrease in stocks this year is based largely on the prospects of an even smaller crop than was harvested in the 1966/67 crop year.

Production. As of September 1, the 1967 cotton crop was estimated at about 8.2 million bales. This would be about 1.4 million bales below last year's crop and the smallest since 1921.

Planted acreage was down about 6 per cent from last year—mainly because there was greater diversion of allotments under this year's upland cotton program and also because the planting season was one of the worst on record.

Harvested acreage, estimated at 8.5 million acres for upland cotton, will show an even

sharper drop—around 11 per cent from last year. Weather—persistent cold, wet conditions in many areas—has been the major factor.

At the same time, bad weather, coupled with heavy insect damage, has reduced the national yield to what will probably be the lowest level since 1962. It is estimated at 460 pounds, compared with 480 pounds in 1966.

Consumption and exports. Combined mill consumption and exports of cotton this year still look as though they will be a little under the 1966/67 total of 14.1 million bales.

Exports this year are expected to add up to around 4.7 million bales—about equal to last year's shipments abroad. Foreign "free world" countries are expected to show about a one-million-bale increase in production mainly because of higher average yields. However, stronger demand in these countries will probably about match the output rise. And net imports of cotton by communist areas may be up slightly.

Consumption prospects abroad are the brightest in Asian countries. Japan, for example, uses large quantities of short staples. And, as U.S. supplies of short-staple cotton are plentiful and prices below last year, a substantial rise in U.S. exports of the shorter staples is expected. Also, shorter staples will probably be substituted to some extent for longer-staple cotton.

Rate of cotton consumption by U.S. mills has stayed at a low level in recent months, and the ratio of mill inventories to unfilled orders for cotton fabric has continued to increase.

However, use of cotton here at home is still tentatively placed at a little over 9 million bales—only slightly below last year's big volume of 9.5 million bales.

The current 1967/68 consumption estimate assumed a turnaround in the ratio of fabric stocks to unfilled orders in late summer or early fall (July data were the latest available in late

September), followed by a cyclical upturn in the rate of cotton use late in 1967 or early 1968.

FARM CREDIT AND TIGHT MONEY

Like everyone else, farmers have been paying higher interest rates on funds borrowed over the past two years. At the same time, they've had to compete for their share of relatively short supplies of loanable funds.

As long as the financial demands of government and industry remain strong, there is little likelihood that current interest rates will drop for any sustained period. Nor is the increasing volume of credit sought and used likely to fall off.

Open market rates are expected neither to increase significantly nor soften much in the near future. Farmers can thus expect to pay relatively high rates for some weeks to come.

As with other catch terms, "tight money" is easy to say. It also carries an air of authority by those who glibly use the phrase as self-explanatory. But tight money usually refers to a complicated, relative monetary situation—a situation resulting when demand for credit is high relative to the supply of loanable funds.

Most farmers borrow from the same money supply that nonfarm borrowers use. And despite the tight money situation, lenders have been able to furnish farmers with the increased amount of production credit they have needed.

The total farm debt on January 1, 1967, at \$45.7 billion was 10 per cent higher than the \$41.6-billion debt of a year earlier.

Some loan funds may have been shifted in 1966/67 from what would ordinarily have been real estate loans. This is indicated by the significant percentage decline in the volume of new farm mortgage loans made.

Although the total volume of farm-mortgage lending in 1966 was larger than for 1965, the general tight money situation hit farm-mortgage lending strongly in the last half of the year.

The estimated farm mortgage debt as of Jan-

uary 1, 1967, was \$23.3 billion, compared with \$21.2 billion on January 1, 1966—an increase of 9.9 per cent. The January 1, 1966, debt was 12.2 per cent over a year earlier.

The non-real estate farm debt increased about 12 per cent during 1966. The amount outstanding on January 1, 1967, was \$21.2 billion—about 85 per cent greater than it was on January 1, 1960.

In obtaining the credit they have needed, farmers may have shifted temporarily from one lender to another. And input suppliers in many cases may have had to carry a larger than usual amount of credit.

Yet farmers seem to have fared relatively well in getting adequate funds—at least for needs other than real estate.

As long as the cost of production credit appears to be less than the anticipated benefits, farmers will probably continue to pay the going rate—not only to get credit, but to get more of it than ever before.

KEEPING STEP IN STATISTICS

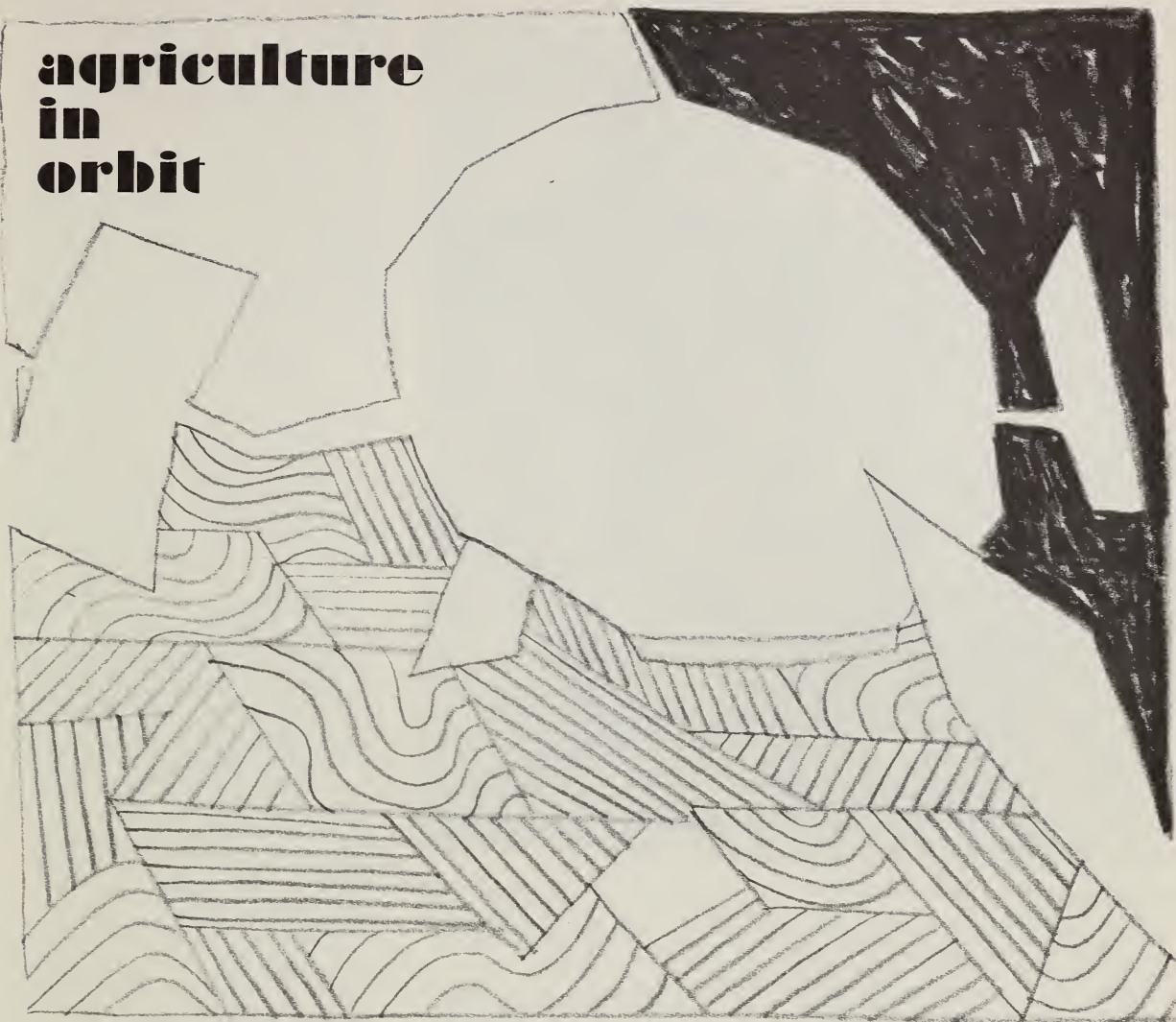
A recently appointed Statistical Review Board has the job of reexamining the Department's statistics to see how well they meet today's needs and in what way they can be improved—and then doing something about it.

It has been 10 years since the last appraisal. And as the pace of change in agriculture, science, industry and international affairs quickens with every decade, statistics may become "old-fashioned" in the light of current requirements.

Here are some of the questions the statistics reviewers will be asking themselves:

What is the real purpose in gathering the statistics? How meaningful are they? Are they broad enough in scope? Timely? How reliable are the sources? Are they presented in a useful form? Do they get to the people who need them? And how can such tools as electronic computers and econometric models be used more effectively in collecting and interpreting data?

agriculture in orbit



The hundred-mile snapshot—with other measurements from a space platform—may be tomorrow's way for crop estimates, acreage reports or other farm-use surveys.

Black stem rust is easy enough to find when it has infested a stand of wheat. Lesions give the stems a gray cast that you can see from across the road.

Or, you could chart the progress of the disease with the help of remote sensors based on a satellite orbiting the earth more than 100 miles in space.

The picture you got wouldn't be as clear as inspection on the ground, or, for that matter, even as clear as fairly close-range aerial photography from a survey plane. But the space platform system—covering a vast area of the earth—could provide an unlimited volume of information, and, as such things go, deliver it almost instantaneously.

It is already evident that many types of data of interest to agriculture are obtainable from space altitudes. In fact, the potential is so great that researchers are now working to develop the machinery

and techniques that will make full use of the possibilities.

Despite the Buck Rogers sound of the phrase, "remote sensing" itself is neither new nor unusual. Aerial photography is one commonplace example of remote sensing of objects. About four-fifths of the total land area of the United States (not counting Alaska) and virtually all the cropland in the nation has been photographed one or more times by USDA's Agricultural Stabilization and Conservation Service alone.

And specialized aerial photog-



raphy has an array of ingenious uses. A talent of near-infrared photography—from the energy in the transition zone between the visible and the infrared regions of the spectrum—has been to provide special information about the health of a given crop. This type of imagery has been able to unmask the presence of a fungus in plum trees, for example, before the condition could be visually observed at ground level.

In Texas, specialists in the Agricultural Research Service are using infrared photography to measure the extent and severity of saline conditions in cotton fields. Tonal differences indicate variations in plant vigor. These in turn are related to saline conditions in the root zone.

A technique known as “multi-

band” remote sensing has widened the interpretive possibilities for agriculture. The photographic appearance of an object varies, depending upon the wavelength of the recorded light. Thus, by simultaneously exposing several films, each sensitive in a different portion or “band” of the electromagnetic spectrum, more information can be recorded.

The system works in much the same way as using filters on a camera. An infrared filter, for example, cuts through haze, providing a clear outline of distant mountains. But the clarity is gained at the expense of reversing dark and light tones. A yellow filter, on the other hand, would leave the haze in the picture but provide a sharper, more striking image of some of the ob-

jects. The two pictures together provide more information about the scene than either alone.

But scientists are probing other ways to use this information system.

The researchers take as their point of departure the experience gained in interpreting differences between objects with relatively strong visual contrast. For example, major types of vegetation, fields, row crops, close-sown crops, water, roads and buildings are easily identified on conventional and specialized aerial photography.

In theory, minute differences between similar objects can also be detected and measured. This would be particularly true if the phenomena were sensed simultaneously at intervals over a broad portion of the spectrum.

To accomplish this, researchers are experimenting with non-photographic sensors, to be used along with photographic equipment. The principal sensors are thermal infrared devices and radars. This “multispectral” sensing, in principal, is the same as multiband sensing. The difference is that it involves the non-visual infrared and microwave regions of the spectrum, as well as the visible region.

For the system to work ideally, mature healthy wheat would invariably result in a given tone or mark. A less fully developed stand would produce another. A diseased crop would have its own image. And so on through all crops, all degrees of maturity, all appreciable variations of their development and health. In other words each object and condition would exhibit its own unique spectral “signature.”

In theory, of course, they do. Different physical properties reflect or emit different wavelengths of energy. The task for the scientists is to identify the marks, to sort them out and to catalogue the thousands of possible causes of the various energy signals.

Tied in with these developments is electronic interpretation of imagery. Although it isn't needed for some important space applications, it is essential if the potential of the system is to be fully exploited.

The reasoning goes like this: The most likely service of space-level sensing devices is to make possible timely and frequent surveys. "Timely" multiplied by "frequent" multiplied by "multi-sensors" quickly returns a volume of information that would overwhelm the ability of existing machinery to sort and interpret the data.

Given the potential and limitation of remote sensing, what are the jobs ahead for this information system? The prospects look like this:

The most likely uses. No major problems are foreseen in acquiring data of several types. By merely adapting existing photographic sensors and interpretation techniques, it should be possible to obtain reconnaissance data on: major land uses, topographic features related to soils, surface water supplies, range conditions and cultural practices.

Possible uses. There's a good chance that systems can be developed to consistently identify species of crops from space altitudes. So far, however, such work has been accomplished only experimentally and at low altitudes.

The real hope for systematical



identification of crop species is through the use of multi-spectral equipment. The problem here is the lack of a well-developed ability to interpret results.

Remote sensing equipment may also be able to take the pulse of

plants from the distance of a space platform. But the analysis of crop vigor depends in good measure on being able to identify the crop, and that is something space-located devices can't always accomplish. Also, though the remote sensors do a good job of identifying loss of health they aren't so competent when it comes to identifying the cause of the ailment.

Usable estimates of crop production may be forthcoming. After crop identity can be established then the sensors should provide the other necessary information—crop vigor and the stand for different areas and stages of growth.

The least likely uses. Two of the least likely jobs for space altitude sensors are a detailed classification of soils and a census of livestock. Although the high-flying machinery would be useful in reconnaissance soil surveys, detailed classifications may still require the traditional augur and lab test. Similarly, it is probably too much to expect information about animal species, breed, age, and sex from a device that is more than 100 miles away.

In sum, specialists see a wealth of information for agriculture flowing from the space age equipment. They see a wealth of problems, too.

But experience and theory both suggest that solutions will be forthcoming. (1)

Type of survey information	Resolution required ¹		Techniques for interpretation		Probable development
	Photographic	Multispectral	Photographic	Multispectral	
Major land uses	Minimal	Minimal	Developed	Undeveloped	Very likely
Soils	Minimal	Minimal	Developed	Undeveloped	Very likely
Water resources	Minimal	Minimal	Developed	Undeveloped	Very likely
Base for mapping	Minimal	Not applicable	Developed	Not applicable	Very likely
Range conditions	Minimal	Minimal	Partially developed	Undeveloped	Very likely
Agronomic	Minimal	Minimal	Partially developed	Undeveloped	Very likely
Crop species identification	Stringent	Minimal	Partially developed	Undeveloped	Possible
Crop health	Minimal	Minimal	Partially developed	Undeveloped	Possible
Crop production	Minimal	Minimal	Partially developed	Undeveloped	Possible
Livestock and wildlife	Maximum	Maximum	Undeveloped	Undeveloped	Unlikely

¹ Degree of clarity required to obtain generally usable or reconnaissance type data relative to the maximum resolution theoretically obtainable.

Automated Chicken Coop Brings More Efficiency to New England Egg Farms

Caring for the chickens isn't the chore it used to be in market egg production—thanks to the use of mechanized equipment.

It takes only about three minutes daily per 1,000 birds to attend to mechanical feeders and ventilation systems in typical New England poultry houses. Care of automatic waterers requires only six hours annually per 1,000 birds.

But collecting and processing eggs after they've been laid is still a time-consuming business for most New England farmers—and a limiting factor on the size of the laying flock one operator can handle.

ERS economists, in cooperation with the Connecticut Agricultural Experiment Station, recently used linear programming to study how New England egg producers could use their labor more efficiently—particularly in egg handling and processing operations. Then, with the time saved, producers could expand the size of their flocks and boost their incomes.

Here are a few highlights of the ERS study:

—Purchasing ready-to-lay pul-

lets instead of raising replacement hens from chicks was a big time-saver and would up net returns on the farms in the study. Growing replacements requires about 11 minutes of labor per pullet. With a limited supply of labor, an operator could make more money by caring for a larger laying flock.

—Gathering eggs from center aisle or community nesting systems was more efficient than gathering them from conventional nesting systems (where individual compartment nests are banked along side and rear walls). The center aisle system groups individual compartment-type nests in a center aisle, permitting the use of a monorail carrier to collect eggs from the back of the cages. The community system has community cages banked along side and rear walls.

Actually, highly mechanized roll-away or mechanized belt conveyor systems were the fastest methods of all for gathering eggs. But the equipment costs of these systems were so high, net returns to producers were lower than with center aisle or community nesting systems.

—Sizing eggs on the farm, though time-consuming, was considerably more profitable than marketing clean unsized eggs.

The use of high-volume washing and sizing equipment (plastic flat collection and in-line egg washer coordinated with sizing equipment) paid off best for three- or four-man operations that purchased ready-to-lay pullets. Collecting eggs in wire baskets was more profitable on three- or four-man operations that raised their own replacements and on all one- or two-man farms because of the high fixed costs of washing and sizing equipment designed for plastic flats.

When eggs were not sized on the farm, net returns tended to be more favorable with the use of wire baskets and immersion washers. (2)

Who Uses the Water in the Stream? Water Laws Differ in East and West

When it comes to this Nation's water law, all America is divided into two parts.

Easterners often go by something called riparian doctrine. Westerners more often follow a concept of prior appropriation.

In essence, the riparian doctrine calls for equal sharing of river water by owners of land along the watercourse. One of two rules within the doctrine may determine how much water may be diverted.

The natural flow rule entitles each owner to an undiminished flow of water. No user may materially alter the natural flow or quality of the stream.

The second riparian rule is "reasonable use." It allows the owners of bordering lands to use water in the light of surrounding circumstances, such as method and nature of use, quantity available and quantity desired, so long as their use is legally "reasonable."

The water code of the West is something else again. Water rights often are based on prior appropriation, roughly, first come first served. For such rights, the

Corn Care

In the perennial battle against weeds, today's corn growers are relying more on chemicals and less on cultivation.

About 23 per cent of the Nation's 65.1 million acres planted to corn in 1965 was treated for weed control before emergence of the crop seedlings. About 32 per cent received post-emergence treatment.

Around 97 per cent of the acreage was cultivated. But where chemical treatment for weed control was used, cultivation was reduced from an average of 2.4 times over the field to 1.9 times. (3)

Powerful Gain

Grandad had his Clydesdales, but Grandson counts his horses in terms of tractors and trucks. And U.S. farmers are adding to their motor power rapidly.

The Nation's 3.2 million farms used 4.8 million tractors in 1964 (the year of the most recent agricultural census). Back in 1959, tractor numbers totaled only 4.7 million units on 3.7 million farms.

Numbers of motortrucks on farms increased from approximately 2.8 million in 1959 to 3.0 million in 1964—a gain of about 7 per cent. However, the number of automobiles used on farms dipped about 1 per cent. (4)

land's location is immaterial.

The man who got there first may continue to exercise all his water rights, even though there is insufficient water to satisfy the man who came second. If there is a water shortage, the seconds usually must cease their diversions of water. But some states may give preferential treatment to certain types of use.

Some easterners seeking more practical policies to underlie a system of water rights are becoming interested in prior appropriation. Prior appropriation has the advantage of making it easier to tell who gets what water when and who gets cut off and at what point. However, the type and method of use perhaps should be more important than who started using the water first.

Some eastern states require at least some water users to obtain permits. (5)

For Farmer Who's Tried Everything Cow Rental Could Be the Next Step

Castles or cows. Whichever it is, there are times when a rental contract may be useful to owner or renter.

In the case of cows, a rental contract—if properly written—may prove quite advantageous.

It can, for example, be a boon to the aging dairy farmer who has grown weary of the manual labor and responsibility associated with managing a milking herd. Yet the farmer can't afford to retire. Solution: Rent his herd and get an income from it for several more years.

Too, for the young dairy farmer just starting out, a cow rental contract may be a means of increasing the size of his milking herd without the heavy expense that purchase of additional cows would entail.

Cow rental contracts contain basically the same standard features found in other contracts. Their effectiveness is increased,

however, if they contain a bonus feature.

Ideally, rental payments will be made monthly with bonus payments for production above a specified base milk production level—with appropriate allowance for fluctuations due to the production cycle.

Income from milk production above the base level should be shared by both owner and renter.

The income share thus proves an incentive for the owner to provide high quality rental cows, and for the renter to provide good feeding and management. (6)

Farm Accidents: Machines Most Often Involved; Middle Years Are the Safest

The rate of fatal farm accidents is on the rise, the actual number is not.

Paradox? No. The statistical increase in accidents per 100,000 results from the shrinking farm population.

In 1955, for example, the accidental death rate was only 13 per 100,000 people in the farm population. This number has increased every year but two since then. In 1965 it reached 19 per 100,000.

Machinery—as it has been for many years—is most frequently involved, accounting for 41 per cent of the accidental farm deaths in 1965. Drowning came next, causing 17 per cent of farm accident fatalities. The full breakdown of the 2,321 fatal farm injuries that occurred in 1965 goes as follows:

	<i>Per Cent</i>
Machinery	40.6
Drowning	16.3
Firearms	9.7
Falls	6.4
Blows	5.7
Burns	4.4
Electricity	3.7
Poison	1.9
Other	11.3
	100.0

Apparently the safest time to live and work on a farm is middle

age—if you can get past the hazardous late teens and early twenties. The person most likely to sustain a fatal injury on a farm is a man either between the ages of 20 and 24 or over 44.

From an accident fatality rate in 1965 of 12.2 per 100,000 for children under 15, the rates rose to 22.7 for ages 20 to 24, declined to 17.1 for the middle years 25 to 44, but increased thereafter to 34 for those 65 and above.

Fatal accidents involving machinery were most frequent for the 15-19-year-olds and those 45 to 70. More than two-thirds of all drownings were of people under 20. Firearm fatalities were heavy in the 10 to 24 age group. Deaths from falls rose after age 50.

Women and girls, although they constitute 48 per cent of the farm population, account for only about 8 per cent of farm accidents. This does not include accidents in the farm home, however. (7)

In a Business That's Mushrooming, Keystone State Has Largest Stake

Add mushrooms to the list of 200 other farm crops—ranging from pigs to peppermint—for which USDA's Crop Reporting Board makes production estimates.

The U. S. mushroom harvest in the 1966/67 crop year (ending June 30) came to 154,789,000 pounds worth \$53,035,000, according to the first nationwide grower survey in the 24 states that grow mushrooms commercially.

Pennsylvania accounts for well over half the crop. New York, Ohio, Delaware and Maryland contribute nearly a third of marketings by all other states.

About 115.4 million pounds, or 75 per cent of last year's crop, were sold to processors at an average price of 31.3 cents a pound. Sales for fresh market totaled 39.3 million pounds at an average price of 42.9 cents.

Growers are planning a 7 per cent production increase for the 1967/68 season. (8)

1966 INCOMES HIGHER FOR 34 OUT OF 44 TYPES OF COMMERCIAL FARMS

In 1966 gross and net incomes were higher than in 1965 on 34 important types of commercial farms in the United States. Incomes remained the same on one type; they declined on nine types.

The declines in net farm income were all 10 per cent or less with two exceptions, cotton-specialty crop farms in the San Joaquin Valley, down 75 per cent and Delmarva broiler-crop farms, down 27 per cent.

Production declined on all the cotton and wheat farms studied except the wheat-fallow in the Pacific Northwest and the cotton farms in the Black Prairie of Texas. Production increased on these farms because of substantial increases in yields per acre.

Total net farm income in 1966 (including net changes in inventories) for all farms in the United States was \$16.1 billion—almost a billion dollars more than in 1965 and the second highest income on record.

Net farm income averaged \$4,995, about a 10 per cent increase over 1965's \$4,493. The factors behind the increase were a 4 per cent decrease in number of farms and a 6 per cent increase in total net farm income.

Realized gross farm income totaled \$9.5 billion, a new high, exceeding the 1965 figure by 10 per cent. (9)

Type of farm and location	Average net incomes		1966 incomes as a percentage of—	
	1960-1964	1965	1966 ¹	1960-1964 1965
	Dollars		Per Cent	
Dairy:				
Central Northeast	4,118	4,378	6,531	159 149
Eastern Wisconsin:				
Grade A	6,429	6,104	9,650	150 158
Grade B	3,284	2,948	4,927	150 167
Western Wisconsin, Grade B	4,109	4,454	6,707	163 151
Dairy-hog, Southeastern Minnesota	4,334	5,274	8,004	185 152
Egg-producing, New Jersey	3,416	4,535	8,336	244 184
Broiler:				
Maine	3,275	2,951	3,210	98 117
Delmarva:				
Broilers	2,049	2,738	2,864	140 105
Broiler-crop	5,978	9,026	6,589	110 73
Georgia	819	1,547	2,246	274 145
Corn Belt:				
Hog-dairy	6,975	10,216	13,589	195 133
Hog fattening—beef raising	3,805	7,853	8,631	227 110
Hog-beef fattening	8,998	15,708	14,522	161 92
Cash grain	11,708	14,964	16,110	138 108
Cotton:				
Southern Piedmont	2,656	2,558	2,511	95 98
Mississippi Delta:				
Small	2,207	2,367	2,407	109 102
Large-scale	32,506	30,631	38,248	118 125
Texas:				
Black Prairie	3,985	4,661	6,875	173 148
High Plains (nonirrigated)	8,901	9,678	13,629	153 141
High Plains (irrigated)	16,414	16,950	17,914	109 106
San Joaquin Valley, Calif (irrigated):				
Cotton-specialty crop	35,111	82,750	21,087	60 25
Cotton-general crop (medium-sized)	28,946	26,282	25,540	88 97
Cotton-general crop (large)	87,030	73,740	66,794	77 91
Peanut-cotton, Southern Coastal Plains	4,563	6,772	6,214	136 92
Tobacco:				
North Carolina Coastal Plain:				
Tobacco	6,350	5,303	6,163	97 116
Tobacco-cotton	6,400	4,975	6,045	94 122
Kentucky Bluegrass:				
Tobacco-livestock, inner area	7,827	7,929	9,367	120 118
Tobacco-dairy, intermediate area	2,863	3,056	3,642	127 119
Tobacco-dairy, outer area	5,370	5,866	6,543	122 112
Pennyroyal area, Kentucky-Tennessee:				
Tobacco-beef	5,273	6,410	6,810	129 106
Tobacco-dairy	5,467	6,870	7,617	139 111
Spring wheat:				
Northern Plains:				
Wheat-small grain-livestock	6,672	9,716	10,500	157 108
Wheat-corn-livestock	7,540	10,774	11,708	155 109
Wheat-fallow	6,688	10,017	12,782	191 128
Winter wheat:				
Southern Plains:				
Wheat	10,421	11,014	11,546	111 105
Wheat-grain sorghum	10,199	11,789	12,731	125 108
Pacific Northwest:				
Wheat-pea	14,414	18,874	23,455	163 124
Wheat-fallow	13,807	14,171	22,057	160 156
Cattle ranches:				
Northern Plains	6,387	7,599	7,549	118 99
Intermountain region	9,521	8,811	9,982	105 113
Southwest	5,996	6,146	7,293	122 119
Sheep ranches:				
Northern Plains	10,067	14,695	13,217	131 90
Utah-Nevada	12,966	18,158	17,872	138 98
Southwest	7,477	9,312	11,778	158 126

¹ Preliminary

Note: Net farm income is the return to operator and unpaid members of the family for their labor and management on the farm and return to total capital. No allowance has been made for payment of rent.

The Not-So-Retiring Farmer

Who's to tell the family patriarch when to quit—especially when his farming sons are not yet ready to take over? Succession is only one problem of retirement on a farm.

The old farmer, unlike the old soldier doesn't have to just fade away.

After suffering through drought-ridden depression years, two world wars and a revolution in the economics and technology of agriculture, the older farmer, is playing an increasingly important role on today's farm scene.

And this at a time of life that finds some of his city brethren searching for retirement paradises on—of all places—farms.

Not only are there more older men in proportion to total rural population today, the proportion of men over 65 actively participating in the rural work force is double that of the urban population.

Part of the reason for this is the nature of agriculture. Farming is more than just a job for most operators; it is a whole style and way of life. Many a man with farming in his blood would sooner reduce his income than lose the independence of being a farmer and/or the satisfaction of working on the land.

Today's older farmer began as a boy doing a man's work and he has kept right on doing it, more often than not because he wants to, long into what the urbanite might consider the twilight years.

The older owner of a farm, often reluctant to relinquish any part of his power, may still be active in managing his farm, even though he has rented it out perhaps to his sons, and is using the income to supplement Social Security payments he may now receive.

Retirement—what's that? The idea of completely stopping work—so common to office and factory workers—is not generally accepted in rural areas. The aver-



age farmer only gradually begins to contemplate retirement and when he does his concept of it is likely to be hazy.

In the 1950's, for example, only 15 per cent of Connecticut farmers intended to retire; only 12 per cent of Texas farmers had definite retirement plans and two-thirds of Wisconsin farmers gave little or no consideration to the problem.

A recent study of South Dakota farmers illustrates the way it is today. Only 21 per cent of the farmers felt they would stop working altogether in retirement; the rest indicated that they would probably continue doing some physical tasks.

This same study showed that

one-fifth of those expecting to continue work preferred to do it for wages off the farm. The median preferred age of retirement for all South Dakota farmers was 62 rather than the usual 65. But the older the farmer the older the age of preferred retirement.

The owner-operator, if he plans it right, can retire at his own pace. As manager, employer, laborer, entrepreneur, mechanic, teacher and engineer on his own farm, he can relinquish one or more of these jobs as he chooses or as they exceed his physical capability.

All he needs to keep his work status is to maintain nominal ownership and control of his prop-

erty. He can leave to others the actual work of farming.

Criss-cross commuters. A frequent pattern now appearing in rural areas involves the retired farmer and his wife "moving into town"—preferably the same town which served the family during the farmer's active career.

While the farmer is moving into town, some older city workers are going the opposite way. They are looking today to rural areas for a place to live inexpensively in retirement.

In addition, farming is emerging as a way for city people as well as farmers to supplement retirement incomes. In a recent study of Florida retirement farms, 64 per cent of the opera-

The Story of a Farm

Seeking the opportunities of the frontier, Elmo Sanders left eastern Iowa in the 1880's for Nebraska, where he established a homestead for himself and his family.

By 1909 his children had all grown up and married and two of his boys, Walter and Marshall, were interested in farming for themselves.

So Elmo—by this time a grandfather and the prosperous owner of two farms though only 49 years old—decided to retire. He rented the two farms to Walter and Marshall.

After two years of successful farm operation, the sons asked their father to credit their rent money toward actual purchase of the land, with Elmo to continue as landlord in lieu of a down payment.

The father agreed, relishing his advisory role. In the summer particularly, he spent as much time as possible helping out on the farms.

Following Elmo's example, both young men soon expanded their holdings, each acquiring another farm. And when their father died, Walter and Marshall became sole owners respectively of the two original farms.

Then came the Great Depression. Walter lost not only his second farm but Grandpa Elmo's original farm as well. By the mid-1930's he was reduced to odd jobs as a day laborer.

Marshall fared better. He lost neither farm and later used the favorable prices during World War II to pay off his debts.

In 1946 Marshall Sanders retired, sold part of his farm to his son, Roger, and moved to a city of 20,000. As Grandpa Elmo had done before him, Marshall turned over the actual operation of the farm to his son while remaining involved as landlord of the unsold portion.

Roger Sanders is typical of many of his generation. Unable to begin his farming career until his father was financially able to retire, he spent the intervening years going to college, working as a farm manager in a bank and serving in the Armed Forces.

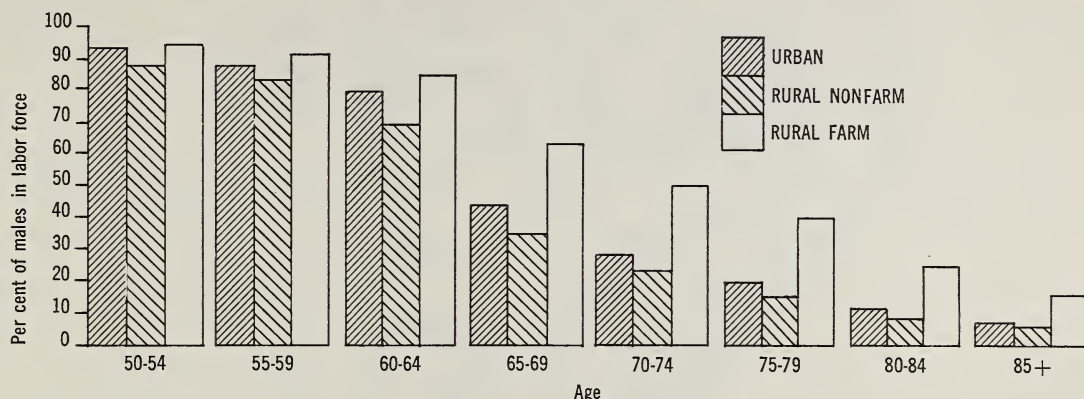
Today Roger is already older than Grandpa Elmo was at retirement. Yet the grandson has been farming full time for only about 20 years. Retirement still seems far away.

One of Roger's sons, Stanley, left the farm for a high school teaching job and the other, Roger, Jr., is still in school.

The problem now is, though Roger, Sr. owns part of the farm he operates, ownership of the major portion passed to his mother on the death of his father. Until the family decides how to turn the property over, Roger cannot achieve full owner-operator status or be sure that the farm will go intact to his heir.

Currently, he is exploring the possibility of forming a family corporation that will join his property with his mother's and facilitate its transfer intact from one generation to another. (10)

THE PATTERN OF RETIREMENT: Whether by choice, or from the need to go on earning a living, the farmer is an active member of the labor force years after the typical retirement age in the city.



tors listed a non-farm pre-retirement occupation.

Mother Earth no security. At one time the land was considered to offer the greatest security in old age. Few farmers today endorse the idea.

Before the extension of Old Age and Survivors Insurance to the self-employed, over 70 per cent of Wisconsin's farmers said they felt farming provided no more security for old age than any other occupation. In other states, half the farmers were not sure they could finance their own retirement.

The farmer's biggest worries in retirement are the same as the city man's: income, health and loss of status.

Old people in the country may enjoy such fringe benefits as space, fresh air and the peace and quiet of rural surroundings. But they are definitely at a disadvantage when it comes to income.

Median retirement incomes for farmers were 25 to 30 per cent less than those of urban persons in 1959.

When it comes to health matters, they are not much better off. For many a farmer, poor health is the sole reason for considering retirement. And if he stays in a

rural area, he may find that health facilities available to him are severely limited.

Farm families, however, tend to stick together more than city families—even when the children remain on the farm while the parents move into town. Thus the older folks' health and monetary needs are frequently looked after even though their actual income is small.

Income is essential, but it doesn't provide for all the contingencies of old age. The restless of retirement can pursue the ex-farmer as much as the former city worker. When the farmer rids himself of the burden of his labor, too often he finds he has also divested himself of the dignity and respect that went with supporting a family.

His wife, on the other hand, continues as the homemaker she always has been, remaining an active member of the household. Her importance, thus, may increase at her husband's expense.

One solution available to the farmer is not so readily at hand in the city. In various ways the farmer can retain some of the powers of management and ownership. He could do it, for example, by heading a corporation

set up for the farm. Or he might lease the farm, exercising the management function of a farm landlord.

Retirement checklist. Farmers, like other self-employed persons, must set aside money from working capital for their retirement. This may mean putting off the purchase of a new piece of equipment or some other capital investment. In addition, a farmer's retirement is usually complicated by the fact of owning the land and the problems of passing it along to his heirs.

What's the proper way for a farmer to prepare for retirement?

The ideal retirement arrangement has probably never been achieved, but unless the family takes the following points into consideration they won't even come close.

- Reasonable degree of income security for parents.

- Allowance for opportunities for farm-operating son.

- Equitable treatment of other children.

- Minimizing impact of taxes and probate courts.

- Maintenance of the farm on an efficient basis.

- Agreement to the plan by the entire family, if possible. (10)



The New Milk

Science has done it again. This time it's a new type of powdered whole milk (foam, spray-dried) tasters say recaptures all of the flavorful quality of fresh milk.

Take whole milk powder. Add water, and what have you got? Milk—with much of the taste and quality of whole fresh milk.

Powdered whole milk isn't new. It dates back 60 years, and was used in large amounts in World War II. U.S. production reached an all-time high of 200 million pounds in the mid-1940's, but has since fallen off to 90 million pounds a year.

Dried whole milk has been used primarily as an ingredient in candy and chocolate coatings. The market has been restricted to ingredient uses in large part by the unsatisfactory flavor of milk when reconstituted. During processing, the delicate flavor of fresh milk is usually lost. As a consequence, dried whole milk has been virtually unacceptable for beverage purposes.

Now, however, USDA scientists have developed a new type of powdered milk—foam spray-dried whole milk. Based on a recent product test, it seems to rate with whole fresh fluid milk in taste quality.

These are the findings of an Economic Research Service pilot study of possible commercial outlets for the product.

Before undertaking the product test, researchers studied current institutional practices in handling and using milk. Then it asked the food managers of eight nonprofit

and charitable institutions in the Washington, D. C., area to try out the foam spray-dried whole milk.

Institutions covered in the pilot study included homes for the aged, county jails, a day care center, a high school, and a seminary.

Test results were generally encouraging. Food managers all rated the product acceptable as a beverage; and most of the people who were served the reconstituted dry whole milk couldn't distinguish it from fresh whole milk.

Managers did report that a foam appeared on the surface of the milk when the powder was reconstituted. On the assumption that the residents would object to it, the foam was removed before serving. Several managers thought local health ordinances might restrict their use of foam spray-dried milk.

Most of the interviewed food managers indicated they would consider using the new product if it were commercially available at a cost in line with fresh whole milk.

Dried whole milk presently on the market appears to have a price advantage over fresh milk.

At the time of the pilot survey, wholesale prices in the Washington area for conventionally dried whole milk averaged about 33 cents for a quantity equivalent to a half-gallon of whole milk. By comparison, the average price paid for fresh milk in the institutions was 44 cents a half-gallon.

Since the cost of processing whole dry milk by the new foam spray method is about the same as that for the present product, foam spray-dried whole milk is expected to be competitive with fresh milk.

The new product could be a boon to residents of institutions, that for budget reasons now limit consumption of fresh milk. This was indicated by several managers who said they would increase the volume of milk they serve if a less expensive product were available.

From the dairy industry's point of view, the availability of a beverage-quality dry whole milk would give the industry more flexibility in meeting consumer demand. It might also help to slow the downward trend of recent years in use of whole milk. (11)

Better a Renderer Than a Borrower Be; What's More It's Big Business

Rover once was fed kitchen scraps. Now Fifi dines on convenience foods served out of cans and cartons. What's happening to all the bones and meat scraps Rover used to eat?

For every 100 pounds of meat cut and sold at the retail store, 5 pounds goes out the back door as waste—bones and fat.

This refuse could become quite a problem for the national community if it weren't for a little-known, big business called the *rendering industry*.

Renderers not only perform a service by collecting animal waste, but they also transform it into useful, profitable products.

Chief among them are inedible tallow and grease—ingredients for many industrial items, ranging from cosmetics to glycerin for explosives. Also important are animal proteins (including fat, meat meal, bone meal and feather meal).

The consumer is thus likely to wind up with yesterday's bones and scraps in the reincarnated form of perfumed soap, plasticized dishes, or fertilizer for his tulip bulbs.

And livestock producers are likely to get the scraps back as enriched feed for their poultry and livestock.

Of the $4\frac{3}{4}$ billion pounds of tallow and grease now rendered annually, only about half is used by U.S. manufacturers. The rest is exported.

Soap makers use around one-fourth of domestic supplies. Another fourth goes into fatty acids

—used in processing a wide variety of items that includes plastic coatings and pharmaceuticals.

Feed manufacturers use about a third of supplies. Animal fat now makes up at least 2 per cent of most poultry rations, and protein-rich meals are a common additive.

As tallow output tends to parallel cattle slaughter, the nation's ever-increasing appetite for meat will mean a bigger volume of tallow to be procured, processed and peddled.

With this expectation, the rendering industry's 600 firms are constantly exploring new uses.

Their research holds promise for the use of tallow derivatives in concrete. A potential exists, too, for tallow as a "carrier" for insecticides, pesticides, and in lubricants.

Work also continues on upgrading the quality and digestibility of the fat and protein content in tallow, while maintaining the high quality of the product as a whole.

Because of this high quality, there is strong world demand for U.S. tallow. In the past three years, exports have averaged around \$160 million annually and have been a plus factor in our balance-of-payments situation. (12)

Holiday Fare

"When the frost is on the punkin and the fodder's in the shock," is the time when most people start thinking about the holiday season and the feasting that goes with it.

The traditional mainstay of holiday festivities has been turkey, and turkey producers are expecting this year to be bigger than ever in volume of sales.

We'll probably set a new record for turkey meat consumption this year—nine pounds per person as compared to eight pounds a year earlier.

The number of turkeys raised in 1967 may well reach over 125 million—8 per cent above last year—quite adequate to set the holiday board in style. (13)

Woolgatherers Stop Counting Sheep To Talk About Marketing the Clip

"One for my master, one for my dame, and one for the little boy that lives down the lane."

Wool marketing isn't quite that simple anymore, if it ever was.

Local wool pools, in which neighboring farmers combine their wool for purpose of sale, handle about 6 per cent of the total production of wool in the United States.

The wool marketing system is, in fact, beset by problems. There's been a general decline in domestic wool production. Many local pools have failed to adopt improved marketing methods. Meanwhile, processors are increasing their quality requirements and demanding more pre-sale preparation.

Recently, the Economic Research Service conducted a study of the domestic wool marketing system. As a part of this study, forty-eight local pools were selected throughout the country. The size of their annual operations ranged from 23,000 pounds to 90,000 pounds of wool marketed. Marketing and operating policies varied considerably.

In most cases, bids were solicited before the wool was assembled. Afterwards, many local pools then assembled and prepared their wool in a temporary setting such as a fairground or railroad siding.

The size and organization of the pool is related to the type of grading performed. Of the pools that grade, some grade by bag inspection while others fleece grade according to specifications.

The average number of firms notified by pools of pending sales ranged from 13 to 23. Sixty-seven per cent of these firms were topmakers and regional dealers. Together, these two types of firms purchased about 68 per cent of the pooled wool.

In spite of the differences in pool operations, major problem

areas seem to be shared by most.

Wool pools must, in the long run, achieve a certain minimum volume of wool in order to stabilize their operations and make quality determining services feasible.

As a result of the survey, the following alternative practices were suggested for improving local wool pool marketing operations:

—Pools should be incorporated for the protection of their members and to lend stability to their operations.



—Sale and assembly dates within regions should be coordinated among the pools to insure an orderly marketing of the total wool supply.

—Standard sales contracts should be used in order to improve sales negotiations. This would also give the pools a clearer basis for evaluating bids.

—Pools should maintain records on the size, quality and price (noting discounts and premiums) of wool clips each year to assist in forming individual pool policies.

—Potential bidders should be provided with complete information on the amount and quality of the wool to be assembled.

For the future, local wool pools could consider more substantial changes, including:

—Establishing a relationship with available warehouses for use of storage and marketing facilities.

—Obtaining market and sales information from reliable wool marketing agencies specializing in marketing grease wool.

—Working with established farm organizations to increase pool membership and participation. (14)

New Mexico's Big Wool Warehouses Shorten Road to Milady's Wardrobe

Time: the recent past. Place: the wool market in New Mexico. Action: wool buyers at random following shearing crews from ranch to ranch.

There, the buyers stand around all day and watch the shearing. From time to time a buyer breaks away from the group, and corners a rancher in the barn or behind the ranch house to make an offer for the wool.

After several such sessions, the rancher accepts the highest offer.

Buyers follow the shearing crew to the next ranch, as the curtain falls.

Nowadays, it's a far different scene in New Mexico. Over 80 per cent of New Mexico's wool clip is assembled at five warehouses—the vast majority of the wool being on consignment or commission.

The system evolved over the past 20 years because both the buyers and growers wanted it.

The know-how and the professional marketing techniques of the warehouse managers save both buyers and producers time and money.

Some of the benefits:

To ranchers. The warehouses

are large enough to offer growers services such as core-testing and current market information.

They have installed bailing equipment to reduce transportation costs. Managers represent the growers in negotiations for lower freight rates.

The volume of wool justifies having specialists to analyze the market to seek top prices, and appraise the customers' clips, working with them to improve the quality.

Instead of one or two buyers out at the ranch, there are 10 to 15 buyers competing for the wool at one time.

To buyers. Negotiating with ranchers scattered over wide areas, plus trying to get to individual ranches before the competition, was time-consuming and expensive. The system also resulted in large duplications of effort and expense. At a shearing a buyer might see about 30,000 pounds of wool in a day. Now in one location the buyer can see from 2 to 5 million pounds in a day.

With large volumes available for inspection, the buyer is surer of getting exactly what he wants.

Thus, the warehouse system helps the producers get a better market and provides a more convenient source of supply to buyers. It also helps to reduce costs on all sides.

But wool marketing is not as satisfactory everywhere as it is in New Mexico.

Specialists in the Economic Research Service working with industry groups have received information from nearly 3,000 producers throughout the United States on how the wool marketing system is working, how they are marketing their wool, and what they think of local marketing conditions. Some of their findings:

How they market. They market through local dealers who come out to the ranch at shearing time, or through warehouses, or through local pools.

A local pool is an informal, independent organization that meets once or twice a year to dispose of the local wool clips. It provides a somewhat organized market.

The pools seldom have adequate storage facilities, although pools in the West are better in this respect than they are in other areas.

The general practice is to borrow or rent space for two or three days—just enough time to assemble the wool and load it on trucks or flatcars.

What they think. The pro-



ducers complained mostly about local dealers, but pools and warehouses came in for their share of criticism. They noted the poor competitive structure and the high marketing costs.

Although there were numerous complaints about low prices, most producers said that they could not accurately determine the market value of wool.

Wool growers indicated that quality evaluation and identification are what the wool market needs. Without them chances of misunderstanding multiply. (15)

Study of Costs Finds You Can't Store, Clean and Handle Peanuts for Peanuts

The vendor at the zoo is merely one of many at the end of a long line of peanut handlers. Less than 10 per cent of the peanut crop consumed by people is sold as roasted nuts. The rest sells as peanut butter, candies, salted nuts or other peanut products.

Between the field and the customer's—or as the case may be, elephant's—mouth lies a vast network of peanut handling activities which perform four primary services (other than roasting, packaging and transportation): cleaning and drying, receiving, storing and loading-out farmers' stock peanuts.

In a recent study of 28 independent peanut warehouses and 36 peanut shelling plants, the average cost for cleaning and drying peanuts was \$2.29 per ton received. This varied from \$0.17 per ton for Virginia-North Carolina shellers to \$4.06 per ton for independent warehouses in the Southeast. The low figure for the Virginia-North Carolina shellers comes from the fact that these plants clean and dry only a small per cent of the peanuts they receive.

These costs, and all costs quoted, are standardized to minimize the effects of variations among plants and warehouses.

Receiving costs averaged \$2.10 per ton for all facilities and ranged from \$1.72 per ton for Virginia-North Carolina shellers to \$3.46 per ton for warehouses in the Southeast.

Load-out costs for all facilities averaged \$1.25 with a range from \$0.99 per ton for Virginia-North Carolina shellers to \$1.56 for Southeast warehouses.

Average standardized storage cost per ton-month-stored ranged from \$0.51 for Virginia-North Carolina shellers to \$1.46 for Virginia-North Carolina warehouses. (16)

Many Mergers Spell More Drop-Outs As Hide Dealers Step Up Consolidation

"Going out of business" is a sign of the times for a number of small business ventures. Hide dealing is one.

The drop-out rate has been increasing among hide dealers doing less than \$300,000 worth of business a year. But the number of bigger-volume dealers has remained fairly constant.

This situation is largely the result of mergers, both up-and-down and across the board.

Under horizontal integration, competing firms have been merging with each other. Under vertical integration, firms have been either acquiring their suppliers' businesses or those of their customers. For example:

Meatpackers are buying tanneries. Tanners are buying out hide dealers. And tanners are making tie-in arrangements with dealers or meatpackers for hide supplies.

A specific instance of vertical integration in the tanning indus-

try has been the control established over movement of pigskin from the packing plant to the shoe retailer.

As the nation's 500 hide dealers continue to integrate and consolidate their interests, the number of dealers will decline proportionately. (17)

Baby Chicks, Eggs, Plants, Flowers Take Air Route to Foreign Markets

Planes generally carry people, but freight's becoming an ever more important cargo. In the past 10 years, total passenger miles flown have increased 189 per cent; freight ton miles 244 per cent.

In the highly competitive world of trade, there will probably be increasing reliance on planes to transport relatively small shipments requiring speedy and special handling. Many agricultural products fall into this class.

Out of all U.S. exports in 1966, the airline portion was \$2.6 billion—9 per cent of the total value of about \$30 billion.

Agricultural products air freighted abroad were worth \$37 million, out of \$6.9 billion total agricultural exports.

The greatest growth in air freighting of agricultural products has been in products that have to be moved to market fast—live animals, eggs, fresh fruits and vegetables, fresh and frozen meats. These items also tend to be the more valuable ones.

For example, 84 per cent of live animal exports by air and sea moved out by air; 99 per cent of live poultry (mostly baby chicks); 74 per cent of the eggs and 67 per cent of nursery stock, bulbs and cut flowers.

Agricultural imports into the U.S. by air last year totaled \$18 million, down 26 per cent from 1965's \$24 million. Chief air-imported commodities were spices, coffee, tea, cocoa, vegetable fats and oils, meats and meat products and hides and skins. (19)

The Soybean Is King of the Southland; A Long, Glorious Reign Is Predicted

Lands traditionally devoted to cotton today are blooming with soybeans.

In the Delta States—Arkansas, Mississippi and Louisiana—soybean production climbed 200 per cent between 1955 and 1964.

In the Appalachian and Southeastern States it rose 80 and 84 per cent, respectively.

The switch to soybeans, however, is only one of the dramatic changes taking place in Southern agriculture. For example, the production increase for the South's new poultry and egg industry has been even more spectacular than soybean's output.

Except for the Southern Plains States—Texas and Oklahoma—Southern poultry and egg production far outstripped the 33 per cent increase for the U. S. as a whole.

Appalachian States increased their production 45 per cent; Southeastern States, 158 per cent and the Delta States increased their egg production by 235 per cent from 1955 to 1964.

The Southern Plains ranked first in the region for raising its crop production per acre; it achieved a 55 per cent increase. The Southeast came close to matching the Southern Plains with its 48 per cent increase.

Appalachia and the Delta, with respective increases of 29 and 25 per cent, did not reach the U. S. average, 33 per cent.

The South also followed the U. S. trend to fewer but bigger farms.

Between 1955 and 1964 the decrease in farm numbers ranged from 26 per cent in Appalachia to 39 per cent in the Delta. Total number of U. S. farms declined 26 per cent in the same period.

Acreage per farm rose 45 per cent in the Delta; in the Southern Plains, 37 per cent; in Appalachia, 20 per cent. (20)

Modern Eden

Today's Eve isn't as likely to offer Adam a fresh apple as she was in the beginning, or even half a century ago.

Adam has a better chance of getting his apple in the form of sauce, juice or frozen slices.

Our national appetite for fresh apples has steadily flagged from over 59 pounds per person in 1910 to a little under 16 pounds in 1966.

Meanwhile, per capita consumption of canned apples in various forms has risen during the same period from 1 pound to over 4½ pounds.

Canned apple juice and frozen products made their commercial debut only about 25 years ago. Last year, our average draught of juice was equivalent to about 2 pounds of fresh apples; and per capita consumption of apples in frozen form averaged out to a little over 11 ounces. (18)

Food Tops South Korean Import List But Self-Sufficiency Planned by 1971

South Korea's principal trading partners are nearby Japan and the distant United States. In 1966, its imports from us totaled \$223 million, including \$83.2 million (f.o.b.) in agricultural products.

The most important imports from the U.S. were cotton worth \$30.9 million; wheat and flour, \$28.3 million; and dairy products, \$3.5 million.

Chemical fertilizers accounted for \$20 million of the nonagricultural imports. Other nonagricultural items from the U.S. include scrap iron and steel, railway locomotives and car parts.

Food consumption has increased more rapidly than crop production and about 15 per cent of the total food consumption is now imported. However, one of Korea's goals is self-sufficiency in food by 1971.

Korean products moving to the U.S. include veneer and plywood, raw silk, and cotton textiles.

South Korea is little larger than Indiana, but its 28 million person population is about six

times as large. There are no extensive lowlands, but relatively fertile lands border principal rivers and the western and southern coasts.

The rugged terrain restricts agriculture, but terracing with modern machinery has made it possible to put some new land under cultivation. However, the amount of arable land remains substantially fixed. Future increases in output must come from such practices as multiple cropping and greater use of fertilizer, pesticides and irrigation.

Rice accounts for almost half of the food produced. Barley production has moved up rapidly in recent years. (21)

Miracolo Economico Means Meat for Italy, But It Spells Corn for the U.S.

Less spaghetti, more meat sauce, steak, pork cutlets and chicken—that's what the Italians are eating these days.

Traditional demand for pasta declined slightly in 1966, but Italians ate an average of 82 pounds of meat—more than twice as much as in 1954, though still less than half of U.S. per capita

meat consumption.

While Italians were eating more meat, Americans were exporting more corn.

With increasing livestock and meat imports, the Italian government has been encouraging the domestic livestock industry expansion. Result: Feed grain imports were 10 times bigger in 1966 than in 1956.

Italy is trying to increase its own feed grain output, and expects a record 4-million-ton corn crop this year. These prospects, plus higher EEC-imposed corn import prices, partly explain a recent decline in U.S. corn exports to Italy.

Nevertheless, exports of U.S. corn last year to Italy—sixth among dollar customers for our farm products—came to nearly 2½ million metric tons worth \$95.8 million. This was about 11 per cent of total U.S. corn exports.

Much of the growth in U.S. exports to Italy has been due to the *miracolo economico*—economic miracle that has raised the Italian's income and living standard.

However, as Italy will not be self-sufficient in feed grains in the near future, it may still be a promising market for the U.S. (22)

Foreign Spotlight

BRAZIL. Fertilizer use in 1966 increased to over 1.1 million metric tons, 18 per cent more than in 1965. Domestic output was up 11 per cent. Imports rose 27 per cent to 600,000 tons, with the U. S. supplying 40 per cent, worth \$26 million. Increased use is attributed to an AID fertilizer loan of \$20 million.

PAKISTAN. Because of favorable weather and extensive fertilizer use, farmers in East Pakistan had an excellent jute crop. Exports of jute and jute products are expected to exceed \$300 million in 1967.

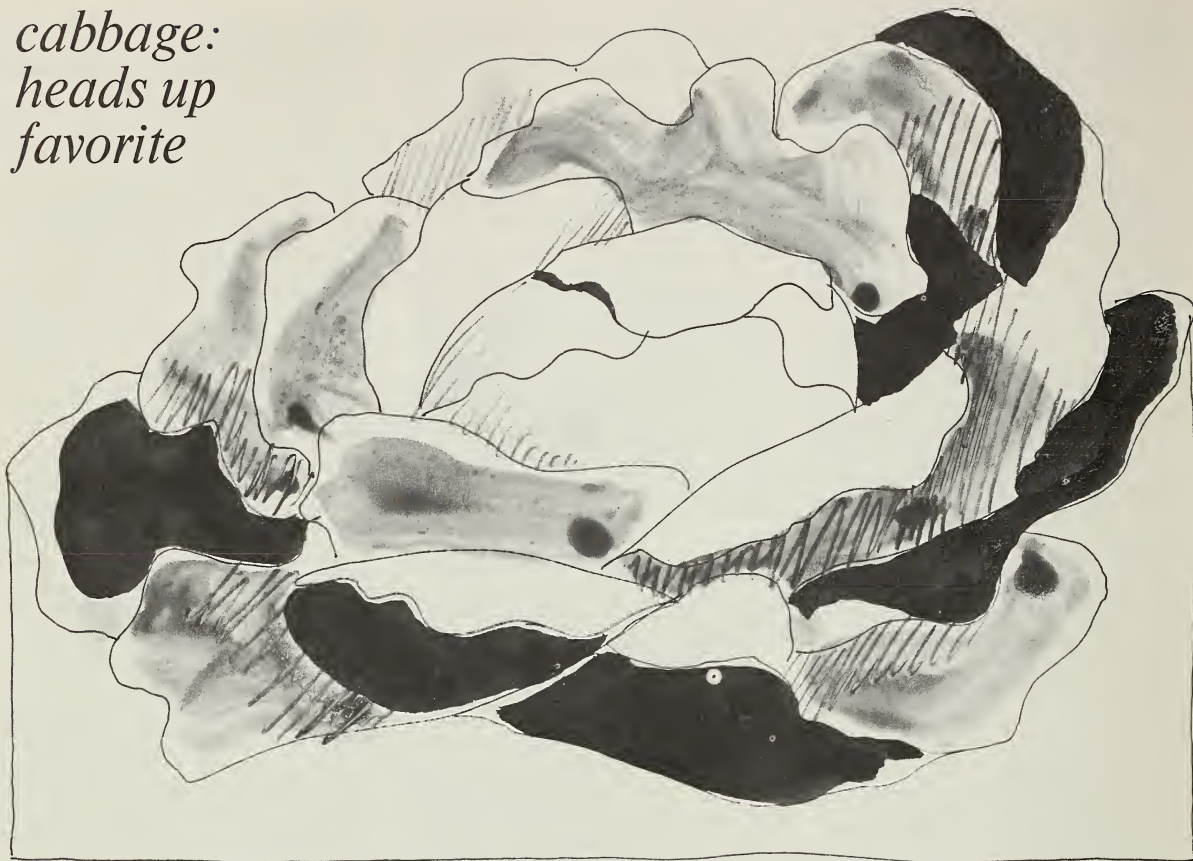
CENTRAL AFRICAN REPUBLIC. The first 4-year plan (1967-70) projects a total investment of

\$149 million. The primary objective is the development of the agricultural sector, which will receive about 40 per cent of the plan's total resources. About two-thirds of the funds will come from foreign aid—primarily from France directly and from the EEC as a group.

DENMARK. The Danish Cheese Export Board, partly in response to the recent U. S. decision to restrict imports of Colby cheese, is encouraging their skim milk producers to divert more of their skim milk into feed use.

ROMANIA. Government sources say wheat yields will reach or exceed 37 bushels per acre; the harvest is expected to equal the 1965 record, 5.9 million tons. The rest of East Europe also expects good grain harvests. (23)

cabbage: heads up favorite



October ushers in an abundance of cabbage—leader of a large family that's kept its culinary reputation since days when Chinese cooks concocted kraut 2,000 years ago.

What's red, green, purple or white—with a head that's either flat, pointed, or round?

Cabbage, of course. And Mrs. Wiggs wouldn't recognize her cabbage patch today.

It's part of 125,000-acre plantings, in 35 states, that yield over 2.3 billion pounds annually.

Fall months bring the most plentiful supplies of cabbage and all its cousins in the mustard family—broccoli and Brussels sprouts, cauliflower and collards, kohlrabi and kale, turnips and rutabagas.

Out of all this big vegetable

family, cabbage is the heads up favorite with the U.S. consumer.

Our annual per person appetite for cabbage runs around 12 pounds, including about 2 pounds of sauerkraut.

This year's cabbage crop is running well ahead of last year's smallish harvest. And sauerkraut devotees will be glad to hear that the crop grown to order for kraut-making alone is expected to be nearly half again as big (45 per cent more) as in '66.

Unlike such vegetables as potatoes and tomatoes which have been considered poisonous in times past, cabbage has enjoyed a good press for about 3,000 years. And it has often had the backing of an enthusiastic public relations corps.

Egyptians placed cabbage on their altars. Physicians in ancient

Greece prescribed it as a cure-all for everything from snakebite to baldness.

The Latins had a word for cabbage—*caput*—which along with the later French nomenclature—*caboche*—not surprisingly means "head."

The explorer-navigator, Jacques Cartier, is given credit for sowing cabbage seeds in America back in the year 1540. It's also said that cabbages growing on Manhattan were the reason the Dutch were willing to pay \$24 for the island.

Since then, hybridizers have perfected many varieties. But the housewife shopping for cabbage will usually find five predominant types from which to choose.

—*Red* cabbage, which may be purple as well as red, is at its peak in the fall though it is avail-

able almost the year 'round.

—*Danish* is solid-headed, late-maturing, and a good keeper. Heads are usually round or oval, sometimes a bit flat, and come in green.

—*Savoy* is a yellowish-green, loosely formed head of crinkly cabbage—on hand almost all year.

—*Domestic* cabbage, mainly an early or midseason green type, has either a flat or round head.

—*Pointed* cabbages are a specialty type sold in early spring as green cabbage. They are smaller than domestic and Danish.

In winter months, cabbage sold from storage is often white or pale green.

As for sauerkraut, it takes about 15 per cent of the annual cabbage crop to satisfy demand.

Kraut has come a long way since it was made in China about 2,000 years ago and found its way to America by way of Germany.

Today's product is quite different from that "put down" in crock or barrel as a thrifty way of using up surplus cabbage from the backyard garden. Modern kraut makers use fine cabbages grown from special seed, and 20th century technology has taken the guess work out of the fermenting and pickling process. (24)

Increased Advertising Effort Pays Off As Consumers Buy More Fluid Milk

Did you know that women tend to remember advertising slogans longer than men do?

Or that the saturation level of consumer exposure (beyond which nothing more will sink in) might be well below total market coverage?

The points were made in a recent survey of milk promotion in six U.S. markets.

The experiment was conducted over a two-year period to see if there was a significant relationship between the amount spent for advertising and the consumers' response.

The present level of promotion by the American Dairy Association is 2 cents per capita annually. This amount of promotion was tested along with two higher levels, 15 and 30 cents per capita.

As it turned out, the medium level, 15 cents of promotion per capita annually, was the most effective in terms of a healthy balance between the money spent on advertising and increased sales.

The medium level of promotion increased milk sales by approximately 4.5 per cent. The heavier promotion, which was twice as expensive, increased sales only 5.9 per cent.

Farmers received a return of 68 per cent on their investment with the medium level promotion as compared to a return of 19 per cent for the more expensive campaign.

Carryover influence on sales six months after the completion of the promotion campaign was about 60 per cent of the initial impact of the campaign for the medium level of promotion. It was only 10 per cent greater for the heavier level.

And, even though there was a relationship between the pattern of consumer recall of slogans and sales, it was nowhere near a one-to-one ratio. It took an increase of 35 per cent in consumer awareness of advertising to increase sales 4.5 per cent.

Results of the survey also indicated that women under 40 tended to remember the slogans for a longer period of time than men of the same age. Over the age of 40, a consumer's long-range recall of advertising dropped considerably.

A year after the advertising campaign was over, sales were still up 4 per cent, though the American Dairy Association had returned to the advertising level of 2 cents per capita annually.

Which might just go to show that intensive, brief promotion campaigns and lady shoppers with good memories add up to increased sales in the long run. (25)

People Who Don't Walk Barefoot In Parks Buy 900 Million Pair of Shoes

Women and young girls are a shoestore's best friends.

They each buy four pair of leather shoes a year, on a national average. Meanwhile, the man in their family limps through the seasons on 1¾ pair—which suggests that his second-best are badly in need of resoling.

Women, in reality, seldom wear out their shoes. The shoes simply go out of style in color or design; and the whims of fashion are a boon to the shoe industry.

It takes about 900 million pair of shoes annually to keep our nation shod. Of these, over 600 million pair are leather shoes of U.S. manufacture; 150 million pair are nonleather fabric and synthetics; and 125 million are imported.

The barefoot bunch and the sneaker set (statistically classed as "boys and youths") buy fewer leather shoes than any other group. Averaging less than 1½ pair a year, they aren't quite as good customers as babies.

If each American shared equally in the leather footwear sold each year, he'd come out with about 3¼ pair of shoes. He would pay a total of \$22 for them, with leather and labor making up the biggest part of the price.

What about shoes of leather substitutes?

It's true that we are buying more footwear made wholly or partly of synthetics. About 35 varieties are now available.

Retail sales indicate that, for many consumers, the ease of cleaning and shining synthetic materials, by wiping them with a damp cloth outweighs attributes of leather footwear.

Other consumers say that leather is more comfortable. And the fashion-conscious are attracted by new colors, textures or grain surfaces that leather tanners create in wider array than manufacturers of synthetics. (26)

NONCALORIC SWEETENERS: THEIR POSITION IN THE SWEETENER INDUSTRY. Roy A. Ballinger, Marketing Economics Division. AER No. 113.

This study seeks to appraise the present status of noncaloric sweeteners in relation to the caloric sweeteners and attempts to evaluate the future prospects of noncaloric sweeteners. The increasing use of noncaloric sweeteners is of great importance to users of sweeteners, particularly industrial food processors, many of whom are able to substitute one sweetener for another in some or all of their products.

AGRICULTURE IN INDONESIA. Geraldine W. Abbott, Foreign Regional Analysis Division. ERS-Foreign 180.

Indonesia's tropical location and rich volcanic soils have made it a major producer of agricultural export crops, such as rubber, copra, palm oil, coffee, tea, spices and tobacco. Agriculture is the main support of about three-fourths of its population and contributes well over half of the value of all recorded exports.

SUMMARY AND EVALUATION OF "LONG TERM FORECASTS OF THE SUPPLY AND DEMAND OF AGRICULTURAL AND LIVESTOCK PRODUCTS IN VENEZUELA." John Earl Hutchinson, Foreign Regional Analysis Division. ERS-Foreign 191.

Study projections indicate potential increases for U.S. agricultural trade with Venezuela. This summary analyzes and evaluates the report developed by the Consejo de Bienestar Rural of Venezuela in cooperation with ERS.

LOW-INCOME FAMILIES IN THE SPANISH-SURNAME POPULATION OF THE SOUTHWEST. Olen E. Leonard, Helen W. Johnson, Economic Development Division. AER No. 112.

This represents a demographic, economic and social study of the low-income Spanish-surname population of the Southwest.



recent publications

The publications listed here are issued by the Economic Research Service and cooperatively by the state universities and colleges. Unless otherwise noted, reports listed here and under Sources are published by ERS. Single copies are available free from The Farm Index, OMS, U.S. Department of Agriculture, Washington, D.C. 20250 State publications (descriptions below include name of experiment station or university after title) may be obtained only by writing to the issuing agencies of the respective states.

METHODS OF GROWING CORN AND GRAIN SORGHUM IN NEBRASKA, 1964. Herman Delvo, Farm Production Economics Division, Darwin Ransom, State-Federal Division of Agricultural Statistics and Delbert Lane, Nebraska Agricultural Experiment Station (Lincoln). Neb. Agri. Expt. Sta. EC 67-833.

Corn and grain sorghum are frequently considered to be interchangeable crops. This is partly due to the fact that the same equipment can be used for both. Data collected from 4,200 farmers in Nebraska are presented to provide a bench mark for analyzing changes in physical and economic conditions and to help in decision-making.

ECONOMIC ASPECTS OF UNHAIRING HIDES AT THE PACKINGHOUSE. John W. Thompson, Marketing Economics Division. MRR No. 797.

Greater efficiency in marketing hides could have an important impact on the ability of the American hide and leather industries to compete in domestic and foreign markets. This report surveys the economic feasibility of unhairing hides at or near packinghouses to produce higher quality leather at lower costs.

PRICE INFORMATION AND MEAT MARKETING IN TEXAS AND OKLAHOMA. Raymond A. Dietrich, Marketing Economics Division in cooperation with Texas and Oklahoma Agricultural Experiment Stations. AER No. 115.

Recent developments in the livestock and meat industry in the Southern Plains necessitate changes in the pattern of marketing information available to producers and meat handlers in the area. This report suggests a price reporting system to combine features of daily and weekly systems would satisfy the need for timeliness in price information.

PRICES AND PRICE SPREADS FOR EGGS, FRYING CHICKENS, AND TURKEYS IN 12 MAJOR CITIES, 1961-66. John R. Pedersen and Vesta E. Kiley, Marketing Economics Division. Stat. Bul. No. 405.

This report is a summary of monthly data compiled from January 1961 to December 1966. The farmer's share of the retail price paid for these products is included.

CHANGES IN FARM PRODUCTION AND EFFICIENCY, A SUMMARY REPORT, 1967. Farm Production Economics Division. Stat. Bul. No. 233.

The total volume of farm output in the United States in 1966 was 13 per cent above the 1957-59 average and 2 per cent less than in 1965. Cropland totaled 332

million acres in 1966, 4 million acres less than in 1965. Crop production per acre was the second highest on record. These statistics and a series of 23 tables are contained in this bulletin.

CONSUMPTION AND EXPENDITURE ANALYSIS FOR SWEETS, NUTS, BEVERAGES, AND MISCELLANEOUS FOODS IN ATLANTA, GEORGIA.

Robert Raunika, J. C. Purcell and J. C. Elrod, Georgia Agricultural Experiment Station (Experiment). Ga. Agri. Expt. Sta. Tech. Bul. N.S. 57.

This publication concerns levels and distribution of quantities and expenditures for sweets, nuts, beverages and miscellaneous foods such as cooking aids, soups, meat pies, baby food, vitamins and minerals by major socio-economic groupings in Atlanta.

FARM ADJUSTMENTS IN SOUTHEASTERN PENNSYLVANIA, 1960-1965.

Glenn A. Zepp, Farm Production Economics Division and Robert H. McAlexander, Pennsylvania Agricultural Experiment Station (University Park). Penna. Agri. Expt. Sta. Progress Report 274.

What changes are taking place in Pennsylvania farming? What sort of farms are expanding their business? Which farms are ceasing operations? Answers to these and other questions are given in this report.

AGGREGATE FARM PRODUCTION AND RETURNS UNDER ALTERNATIVE COTTON PRICES AND ALLOTMENTS, THE ROLLING PLAINS OF TEXAS. Roy E. Hatch, Farm Production Economics Division and D. S. Moore, Texas Agricultural Experiment Station (College Station). Texas Agri. Expt. Sta. MP-831.

The purpose of this report is to appraise the effects of changes in the price of cotton and of specified cotton allotment levels on the estimated aggregate farm production and income in the Rolling Plains of Texas. Twenty-nine counties are included in the study.

COSTS AND RETURNS, COMMERCIAL TOBACCO FARMS, COASTAL PLAIN, NORTH CAROLINA, 1966. Owen K. Shugars and Daphene E. Tippet, Farm Production Economics Division. FCR-46.

This is part of a continuing series of reports on a nationwide study of costs and returns on commercial farms. It contains a series of tables and summary.

CROP-HAIL INSURANCE, 1965—VOLUME, COST, INDEMNITIES. Lawrence A. Jones, Farm Production Economics Division. ERS-342.

Tables outlining the amount of crop insurance coverage by region in the United States, its distribution across the country, net premiums paid and payments made

to farmers are included in this brief report. The study period covers 1952-1965.

ADOPTION OF THE CONTINUOUS MIX PROCESS IN BREAD BAKING: SOME EFFECTS ON FIRMS AND THE INDUSTRY. T. W. Chumley, Marketing Economics Division. ERS-329.

This publication presents the results of a study of the effects of automation in the baking industry, both on plants which adopt automation and the industry as a whole.

COSTS AND RETURNS, WESTERN LIVESTOCK RANCHES, 1966. Wylie D. Goodsell, Macie J. Belfield, Farm Production Economics Division and James R. Gray, New Mexico Agricultural Experiment Station. FCR-45.

This is part of a continuing series of reports on a nationwide study of costs and returns on commercial farms. It contains a series of tables and summary.

SUGGESTIONS FOR PLANNING AND ZONING IN APPALACHIA. E. D. Solberg, Natural Resource Economics Division. ERS-330.

This report discusses enabling statutes and zoning ordinances and presents a checklist of factual data needed to provide comprehensive community planning in Appalachia.

Numbers in parentheses at end of stories refer to sources listed below:

1. H. T. Frey, Potential Agricultural Applications of Remote Sensing from Space Platforms (M); 2. E. S. Micka, I. F. Fellows, Economic Effects of Alternative Market Egg Production Organizations, Conn. Agri. Expt. Sta. Bul. 408 (Storrs) (P*); 3. H. Smith, Corn Growing Practices, 1965 (M); 4. P. E. Strickler, Machines and Equipment on Farms with Related Data, 1964 and 1959, Stat. Bul. No. 401 (P); 5. W. M. Champion, Altering a System of Water Rights—Look Before You Leap (S); 6. G. E. Frick and R. L. Christensen, Base-Incentive Cow Rental Contract, N. H. Agri. Expt. Sta. (P*); 7. Cotton Situation, CS-232 (P); 8. Tobacco Situation, TS-121 (P); 9. W. Goodsell, Farm Costs and Returns: Commercial Farms by Type, Size and Location, AIB-230, revised September 1967 (P); 10. From "Older Rural Americans," edited by E. G. Youmans, to be published by University of Kentucky Press, Fall 1967. 11. D. F. Dunham, Trial Use of Foam Spray-Dried Whole Milk in Selected Types of Institutions, ERS-343 (P); 12. J. W. Thompson, An Economic Evaluation of the Rendering Industry (S); 13. Poultry and Egg Situation, PES-248 (P); 14. C. A. O'Dell, Wool Pools in the

Domestic Wool Marketing System (M); 15. A. D. Jones, Industry-Government Research to Improve Wool Marketing (S); 16. N. W. Wynn, D. A. Reimund, Costs of Storing and Handling Farmers' Stock Peanuts in Commercial Facilities, 1965-66, ERS-352 (P); 17. J. W. Thompson, The Current Status of Hide Marketing (S); 18. The Fruit Situation, TFS-164 (P); 19. J. R. Corley, M. R. DeWolfe in For. Agri. Trade, Oct. 1967 (P); 20. G. T. Barton, W. H. Brown, The Commercialization of Southern Agriculture (S); 21. W. Logan (SM); 22. A. Miller in For. Agri. Trade, Sept. 1967 (P); 23. Foreign Regional Analysis Division (SM); 24. The Vegetable Situation, TVS-165 (P) and (SM); 25. W. E. Clement, Consumer Response to Varying Levels of Advertising Intensity for Fluid Milk (M); 26. J. W. Thompson, Hide Leather and Shoe Marketing in the U.S. (S); 27. J. Sharples, R. Perrin, Fertilizer Use in Iowa Reaches Record Level (M*).

Speech (S); published report (P); unpublished manuscript (M); special material (SM); *State publications may be obtained only by writing to the experiment station or university cited.

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Tall Corn

Farmers in Iowa (that's where the tall corn grows) have been using more fertilizer faster than the rest of the U.S.

They put a record 1,750,000 tons on their fields last year. This was a poundage increase of 150 per cent over use in 1960, compared with a rise of only 38 per cent for the nation as a whole.

Not surprisingly, corn gets most of the plant nutrients. About 90 per cent of Iowa's corn acres are now fertilized, in contrast to 50 per cent in 1959.

There's a definite trend, too, to use more single component fertilizers—such as anhydrous ammonia and superphosphates—and less mixed-analysis fertilizers.

How about cost? It's relatively low. Fertilizer is one exception to the general uptrend in prices farmers pay for most inputs.

Prices of two of the three primary fertilizer components—and especially high-nitrogen fertilizers—have actually dropped since 1960.

Anhydrous ammonia, for example, costs about 27 per cent less; and the popular 5-20-20 has dropped about 5 per cent in price. (Advances in fertilizer production technology have been the big factor.)

Meanwhile, Iowa corn growers have been getting bigger yields. This has helped balance out the increasing costs of things they have to buy.

So, with the combination of circumstances, a farmer needed less than 5 bushels of corn to pay for 100 pounds of anhydrous ammonia last year. In 1960, it took 7½ bushels. (27)

THE FARM INDEX

CONTENTS

	page
THE FARM: <i>Agriculture in Orbit—Space age technology is coming to the farm</i>	5
RURAL LIFE: <i>The Not-So-Retiring Farmer—He works more years than city folk</i>	11
MARKETING: <i>The New Milk—Powdered whole milk is tasting better and better</i>	14
THE CONSUMER: <i>Cabbage: Heads Up Favorite—Sauerkraut's only part of the tale</i>	20

Numbers in parentheses at end of stories refer to sources listed at end of issue.

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